1136-109 Low-Energy Impedance-compensating Biphasic Waveforms Defibrillate Pre-hospital Ventricular Fibrillation at High Rates

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Background: A well designed low-energy impedance-compensating biphasic waveform allows automatic external defibrillator (AED) characteristics more suitable to early defibrillation (smaller, lighter) than high-energy waveforms. This study observed such an AED on 100 consecutive victims of out-of-hospital cardiac arrest.

Methods: AEDs incorporating 150 J impedance-compensating biphasic waveforms were used in 12 EMS systems. Defibrillation was defined as conversion to an organized rhythm or asystole. Endpoints included defibrillation effectiveness and resulting rhythm.

Results: All 100 patients were correctly identified by the AED as requiring a shock (N = 44, 100% sensitivity) or not (N = 56, 100% specificity). A single 150 J biphasic shock defibrillated the initial (i.e., index) VF episode in 39/44 (89%) patients. For all VF episodes, initial or subsequent, 175/202 (87%) were terminated with a single 150 J shock. On average, 1.2 ± 0.9 shocks were required to terminate any VF episode. At the time of patient transfer, an organized rhythm was present in 34 (77%), asystole in 7 (16%) and VF was in progress in 3 (7%) patients. Despite 911 call to shock times of 8.1 ± 3.0 minutes, return of spontaneous circulation occurred in 19/34 (56%) of presenting VF patients in whom data was available.

Conclusions: Low-energy impedance-compensating biphasic waveforms defibrillate out-of-hospital cardiac arrest at high rate.

1137 Coronary Stents: New Stents and Head-to-Head Comparisons

Tuesday, March 31, 1998, 3:00 p.m.–5:00 p.m.
Georgia World Congress Center, West Exhibit Hall Level
Presentation Hour: 3:00 p.m.–4:00 p.m.

1137-59 Nitinol Radius Stent Induces Less Platelet Aggregation Than Stainless Steel Palmaz-Schatz/Gianturco-Rubin II Stents

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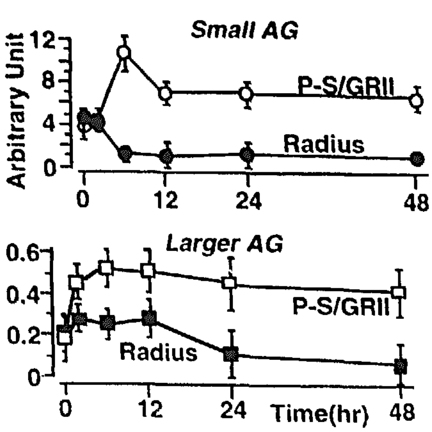
Background: Previous studies have indicated that platelet activity is enhanced after stent implantation. To determine the differences in platelet function among implanted stents, we compared platelet aggregation (AG) after implanting nitinol Radius and stainless steel Palmaz-Schatz (P-S) or Gianturco-Rubin II (GRII) stents.

Methods: Peripheral blood samples were obtained from 23 patients (pts) with coronary artery disease before and at 2, 6, 12, 24, 48 hrs after implantation of nitinol (Radius, n = 12) or stainless steel stents (P-S, n = 7; GRII, n = 4). All samples were immediately assayed for platelet AG using a recently developed highly sensitive laser-light scattering method and were evaluated according to aggregate size, starting at a very low concentration of agonists (epinephrine or ADP). All pts received orally with aspirin 243 mg/day and ticlopidine 200 mg/day throughout the study period. Pts with acute coronary syndromes and/or diabetes mellitus were excluded.



Results: Even treated with aspirin and ticlopidine, both small- (< 100 platelets) and larger-sized AGs were induced from the very low concentration of agonists after stent implantation. This enhancement of the platelet AG was significantly less with nitinol Radius stent than with both stainless steel stents. The time courses of ADP (10 nM)-induced AG (small and larger) are shown below (× 10^4 arbitrary units; mean ± SEM).

Conclusions: The nitinol Radius stent induces less platelet AG than do the stainless steel P-S/GRII stents. A possible explanation for this finding could be the type of metal used and/or the design of these stents.

1137-60 In-stent Restenosis Using Newer Stent Designs Available in Germany

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Background: After approval of the classic JJ-Palmaz-Schatz and Cook-GR stents, many new designs have been developed to improve reliability, flexibility and visibility. It is not known, however, whether these new stent designs also reduce in-stent restenosis. Therefore, we analyzed the implantations of newer stents now available in Germany regarding restenosis.

Methods: A total of 823 stent implantations was analyzed. Follow-up angiograms were usually routinely obtained at 6 months. Restenosis rate (Re), expressed as angiographic dichotomous (> 50% lumen diameter) stenosis was related to stent diameter (Dia, mm), lesion length and to the balloon pressure applied during deployment (Press, mmHg).

Results (all groups did not differ statistically significant (p > 0.05)):

			with Re		without Re	
Stent	# impl	Re	Dia	Press	Dia	Press
AVE-Micro II	217	30%	3.0	12.0	3.0	10.9
AVE-GFX	137	29%	3.0	9.8	3.2	9.3
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sito	[illegible]	32%	2.8	10.9	2.9	11.8
Wiktor	[illegible]	29%	3.1	11.3	3.1	10.8

Conclusion: Although newer stent designs show improved flexibility and steerability, they do not seem to reduce the rate of in-stent restenosis. Prospective, randomized trials comparing these new stents for restenosis will probably be a waste of time. Other approaches have to be developed to reduce in-stent restenosis.

1137-61 Immediate and Follow-up Results Following Implantation of the Long and Short NIR Stent: Comparison With the Palmaz-Schatz Stent

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Background: The NIR stent has a continuous uniform multicellular design which has superior flexibility prior to expansion and achieves excellent support and scaffolding after deployment. Because of these characteristics the long NIR stent is available and widely used. However, there is little information about the follow-up results following implantation of the long NIR stent.

Methods: Between July 1995 and December 1996, stenting with a 16 mm NIR (NIR-16), a 32 mm NIR stent (NIR-32), or a Palmaz-Schatz stent (PS) was performed in 68, 57, and 155 lesions, respectively.

Results:

	PS	NIR-16	NIR-32	P
Success (%)	92	93	93	NS
Delivery failure (%)	2.6	4.4	5.3	NS
Stent thrombosis (%)	0.7	0	0	NS
Reference (mm)	3.14 ± 0.58	3.00 ± 0.50	2.90 ± 0.47	< 0.05
Lesion length (mm)	8.9 ± 5.0	11.0 ± 4.1	14.8 ± 7.7	< 0.01
MLD pre (mm)	1.03 ± 0.53	1.00 ± 0.49	0.89 ± 0.46	NS
MLD post (mm)	3.17 ± 0.61	2.99 ± 0.51	2.89 ± 0.49	< 0.05
MLD F/U (mm)	2.31 ± 0.98	2.25 ± 0.80	1.63 ± 0.76	< 0.01
Angio. F/U (%)	73	71	70	NS
Restenosis (%)	16.5	13.3	51.3	< 0.01

Success: procedural success, MLD: minimum lumen diameter, F/U: follow-up, Angio: angiographic

Conclusions: Although stent delivery of a long NIR stent was acceptable, restenosis rate of a long NIR stent was high compared with a short NIR stent or a Palmaz-Schatz stent.

1137-62 A Case Matched Comparison Between Three New Tubular Stents

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In order to comparatively assess Bestent®, NIRstent® and Multilink® stent, the